

an instruction unit operable to send download mode instructions to a storage unit at least indicating that the storage unit should enter a download mode;

A¹ a status determination unit operable to receive download status information from the storage unit indicating at least whether the storage unit has entered the download mode; and

a controller operable to permit the downloading of the desired data signal from the demultiplexer to the storage unit as a function of the download status information.

59. The apparatus of claim 58, wherein at least one of the receiving unit, the demultiplexer, the instruction unit, the status determination unit, and the controller are separately implemented.

60. The apparatus of claim 58, wherein at least two of the receiving unit, the demultiplexer, the instruction unit, the status determination unit, and the controller are integrally implemented.

61. The apparatus of claim 58, wherein the storage controls start and stop conditions for downloading independently of the controller.

62. The apparatus of claim 58, wherein the instruction unit is operable to provide a wait instruction to the storage unit which indicates that the storage unit should wait until a scheduled time is reached to download the desired data signal.

63. The apparatus of claim 58, wherein the instruction unit is operable to provide a setup instruction to the storage unit which indicates that the storage unit should transmit download status changes to the status determination unit during the downloading of the desired data signal.

64. The apparatus of claim 63, wherein the controller permits release of the desired data signal to the storage unit such that the storage unit independently controls a download start and a download stop by monitoring data start and data stop indicators within the desired data signal.

~~65~~. The apparatus of claim 64, wherein the desired data signal is in an ATRAC compressed format.

66. The apparatus of claim 58, wherein:

the status determination unit is operable to request the downloading status information from the storage unit; and

the control unit is operable to (i) compute downloading completion information from the downloading status information, and (ii) output the downloading completion information to a display unit.

67. The apparatus of claim 66, wherein the status determination unit is operable to request the downloading status information on a periodic basis.

68. The apparatus of claim 66, wherein the downloading status information includes time data and the controller is operable to compare the time data with a total time value contained within the desired data signal to obtain the downloading completion information.

69. The apparatus of claim 68, wherein the downloading completion information represents at least one of: (i) a numerical percentage of downloading completion; and (ii) elapsed time in downloading.

70. The apparatus of claim 58, wherein:

the status determination unit is operable to receive an error signal from the storage unit indicating that at least one of a packet continuity error, a transport error, a checksum error, and an operational error has occurred; and

the controller is operable to output an error message to a display unit in response to the error signal.

71. The apparatus of claim 70, wherein the controller is operable to instruct the storage unit to retry the downloading of the desired data signal at a next scheduled time at which the desired data signal is available to download.

72. The apparatus of claim 70 wherein:

the controller is operable to (i) determine whether a download retry is possible in response to the error signal; and (ii) output a message to a display unit indicating that downloading cannot be accomplished when a download retry is not possible; and

the instruction unit is operable to output a download mode instruction to the storage unit to terminate downloading when the controller determines that a download retry is not possible.

~~73.~~ The apparatus of claim 58, wherein the instruction unit is operable to request that the storage unit record management data concerning the downloaded desired data signal when downloading is complete.

~~74.~~ The apparatus of claim 73, wherein the management data includes at least one of U-TOC data, AUX-TOC data, and AUX data obtained from the desired data signal.

75. The apparatus of claim 58, wherein the instruction unit is operable to request, and the status determination unit is operable to receive, download readiness information from the storage unit, the download readiness information including at least one of (i) whether the storage unit is powered on; (ii) whether a storage medium is loaded in the storage unit; (iii) whether the storage medium is write protected; and (iv) whether the storage medium has requisite storage capacity to store the desired data signal.

76. The apparatus of claim 58, wherein the controller is operable to facilitate downloading of the desired data signal from the demultiplexer to one or more storage units.

77. The apparatus of claim 76, wherein the controller is operable to register a new storage unit that is connected to the apparatus.

78. The apparatus of claim 77, wherein:
the instruction unit is operable to request identification information from the new storage unit; and
the controller is operable to store the identification information received from the new storage unit.

79. The apparatus of claim 78, wherein the instruction unit is further operable to request, and the controller is operable to: (i) receive storage unit information from the storage unit, including storage unit type, detailed type, and ATRAC compression capability; and (ii) store the requested information.

80. The apparatus of claim 79, wherein the storage unit type information includes at least one of an analog VCR type, a digital VCR type, a DV type, a D-VHS type, an MD recorder type, a CD recorder type, a DVD recorder type, and a hard disc drive type.

81. The apparatus of claim 79, wherein the detailed type information includes at least one of an analog VCR indication, an MD recorder indication, and a DVD recorder indication.

82. The apparatus of claim 77, wherein the controller is operable to perform at least one function selected from (i) assigning the new storage unit a name by default; and (ii) assigning the new storage unit the name in accordance with a user instruction.

83. The apparatus of claim 82, wherein the controller is operable to prompt a user to select at least one of the one or more storage units into which the desired data signal is to be downloaded by selecting the name of the storage unit.

84. The apparatus of claim 76, wherein the controller is operable to prompt a user to select at least one of the one or more storage units into which the desired data signal is to be downloaded.

85. The apparatus of claim 76, wherein the controller is operable to register that a storage unit has been disconnected from the apparatus.

86. A method for downloading a desired data signal from a multiplexed data signal, comprising:

receiving the multiplexed data signal from a communications channel;

demultiplexing the multiplexed data signal to extract the desired data signal;

sending download mode instructions to a storage unit at least indicating that the storage unit should enter a download mode;

receiving download status information from the storage unit indicating at least whether the storage unit has entered the download mode; and

downloading the desired data signal to the storage unit as a function of the download status information.

87. The method of claim 86, wherein the downloading of the desired data signal to the storage unit is performed such that the storage unit independently controls start and stop conditions for downloading.

88. The method of claim 87, wherein the storage unit independently controls the start and stop conditions by monitoring data start and data stop indicators within the desired data signal.

89. The method of claim 88, wherein the desired data signal is in an ATRAC compressed format.

90. The method of claim 86, further comprising providing a wait instruction to the storage unit which indicates that the storage unit should wait until a scheduled time is reached to download the desired data signal.

91. The method of claim 86, further comprising providing a setup instruction to the storage unit which indicates that the storage unit should transmit download status changes to the status determination unit during the downloading of the desired data signal.

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92. The method of claim 86, further comprising:
requesting the downloading status information from the storage unit;
computing downloading completion information from the downloading status information; and
outputting the downloading completion information to a display unit.

93. The method of claim 92, wherein the request for the downloading status information is performed on a periodic basis.

94. The method of claim 92, wherein the downloading status information includes time data, the method further comprising comparing the time data with a total time value contained within the desired data signal to obtain the downloading completion information.

95. The method of claim 94, wherein the downloading completion information represents at least one of: (i) a numerical percentage of downloading completion; and (ii) elapsed time in downloading.

96. The method of claim 86, further comprising:
receiving an error signal from the storage unit indicating that at least one of a packet continuity error, a transport error, a checksum error, and an operational error has occurred; and
outputting an error message to a display unit in response to the error signal.

97. The method of claim 96, wherein the storage unit retries the downloading of the desired data signal at a next scheduled time at which the desired data signal is available to download.

98. The method of claim 96, further comprising:

determining whether a download retry is possible in response to the error signal;

outputting a message to a display unit indicating that downloading cannot be accomplished when a download retry is not possible; and

outputting a download mode signal to the storage unit to terminate downloading when the download retry is not possible.

99. The method of claim 86, wherein the storage unit records management data concerning the downloaded desired data signal when downloading is complete.

100. The method of claim 99, wherein the management data includes at least one of U-TOC data, AUX-TOC data, and AUX data obtained from the desired data signal.

101. The method of claim 86, wherein the storage unit provides download readiness information, the download readiness information including at least one of (i) whether the storage unit is powered on; (ii) whether a storage medium is loaded in the storage unit; (iii) whether the storage medium is write protected; and (iv) whether the storage medium has requisite storage capacity to store the desired data signal.

102. The method of claim 86, further comprising downloading the desired data signal to one or more storage units.

103. The method of claim 102, further comprising registering a new storage unit.

104. The method of claim 103, wherein said registering step includes:
requesting identification information from the new storage unit; and
storing the identification information received from the new storage unit.

105. The method of claim 104, further comprising (i) requesting storage unit information from the new storage unit, including at least one of storage unit type, detailed type, and ATRAC compression capability; and (ii) storing the requested information.

106. The method of claim 105, wherein the storage unit type information includes at least one of an analog VCR type, a digital VCR type, a DV type, a D-VHS type, an MD recorder type, a CD recorder type, a DVD recorder type, and a hard disc drive type.

107. The method of claim 105, wherein the detailed type information includes at least one of an analog VCR type, an MD recorder type, and a DVD recorder type.

108. The method of claim 103, further comprising at least one step selected from: (i) assigning the new storage unit a name by default; and (ii) assigning the new storage unit the name in accordance with a user instruction.

109. The method of claim 108, further comprising prompting a user to select at least one of the one or more storage units into which the desired data signal is to be downloaded by selecting the name of the storage unit.

110. The method of claim 102, further comprising prompting a user to select at least one of the one or more storage units into which the desired data signal is to be downloaded.

111. The method of claim 102, further comprising registering that a storage unit has been disconnected.--